Natural Infrastructure Management

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Agenda

- Natural Infrastructure Management (NIM) History and Concepts
- Benefits of NIM
- Conducting the Natural Infrastructure Assessment (NIA)
- NIM-Environmental Management System (EMS)-Asset Management (AM) Integration

Air Force NIM History

2001
- Encroachment national issue, Congressional demand for quantification
- New focus on managing resources to operational requirements
- Environmental transformation principles defined by SAF/IEE

2002
- Resource Capability Framework developed by SAF/IEE
- Framework shared with XO, XP, XI, IL, OSD, military services, Congress
- XO embraces concept, suggests pilot at Shaw AFB

2003
- Resource Capability developed
- Resource Capability pilot tests (ACC, AETC)

2004
- Refinements, further development, additional coordination and interest
- Additional pilot tests at ANG, USAFE completed
- RC applied to all ACC bases, airspace, ranges
- New policies to holistically manage natural infrastructure, AFPD 90-8
- XO/XP/IL/IE IPT formed to develop implementation guidance for policies
- Resource valuation initial exercises (Eglin)
- Resource Valuation inventory for Avon Park AFR and Poinsett Range

Air Force NIM History (continued)

2005
- Application of RC completed at AETC installations
- Application of RC and RV completed at AFSOC installations

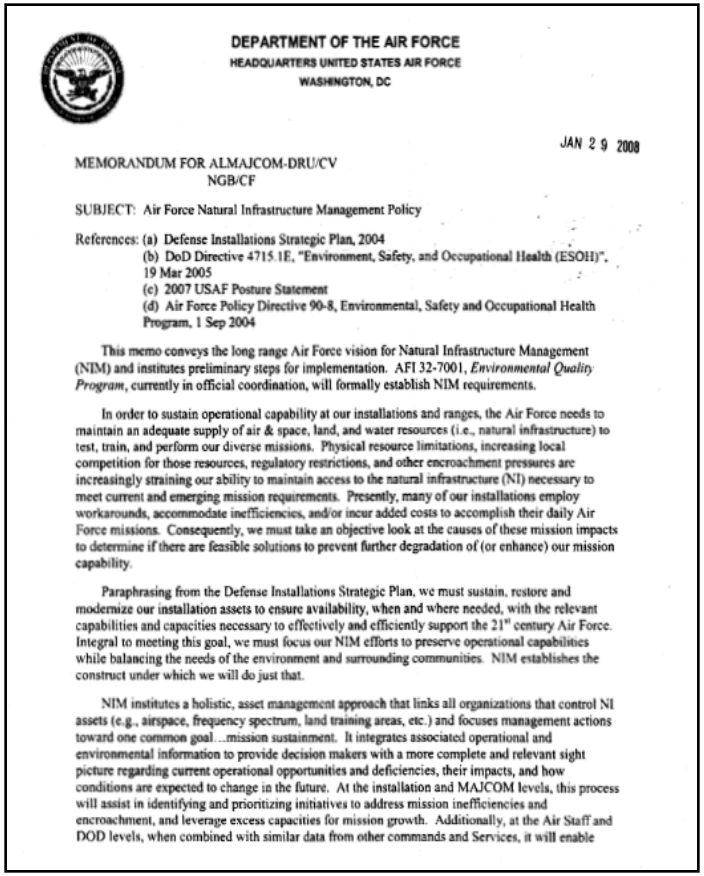
2006
- Transformation from RC to NIA
- Application of the NIA in progress for PACAF installations
- Application of the NIA to AMC installations

2007
- Application of NIA at AMC Installations Completed
- Application of NIA at AFSPC Installations

2008
- NIA Guide Released by USAF Jan 08
- ACC NIA Updates
- PACAF NIA Updates

2009
- AFDW NIA Updates
- ANG NIA Updates

Policy Letter and NIA Guide



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

JAN 2 9 2008

MEMORANDUM FOR ALMAJCOM-DRU/CV
NGB/CF

SUBJECT: Air Force Natural Infrastructure Management Policy

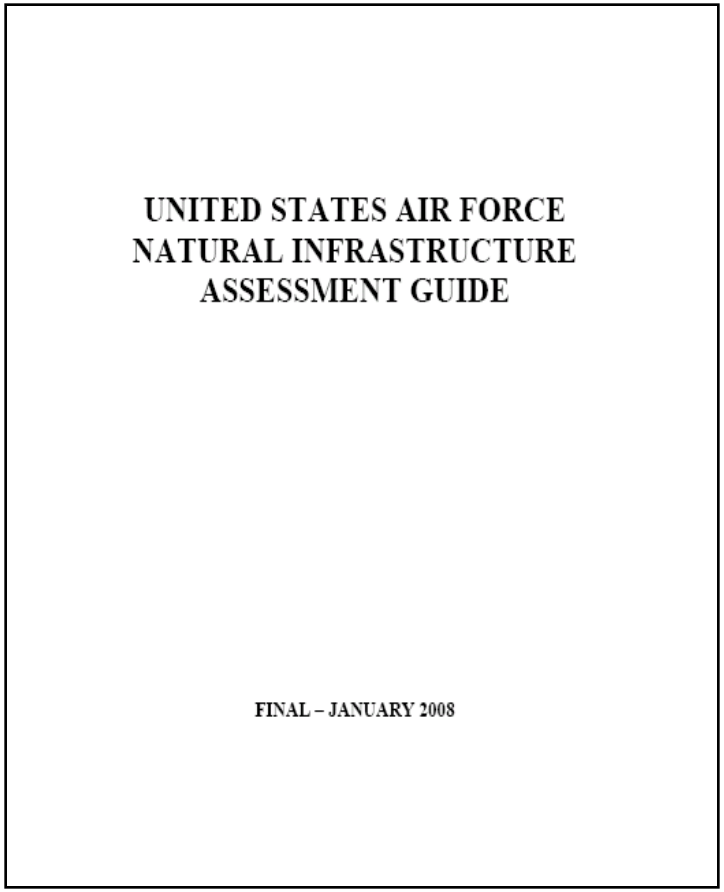
References: (a) Defense Installations Strategic Plan, 2004
(b) DoD Directive 4715.1E, "Environment, Safety, and Occupational Health (ESOH)", 19 Mar 2005
(c) 2007 USAF Posture Statement
(d) Air Force Policy Directive 90-8, Environmental, Safety and Occupational Health Program, 1 Sep 2004

This memo conveys the long range Air Force vision for Natural Infrastructure Management (NIM) and institutes preliminary steps for implementation. AFI 32-7001, *Environmental Quality Program*, currently in official coordination, will formally establish NIM requirements.

In order to sustain operational capability at our installations and ranges, the Air Force needs to maintain an adequate supply of air & space, land, and water resources (i.e., natural infrastructure) to test, train, and perform our diverse missions. Physical resource limitations, increasing local competition for those resources, regulatory restrictions, and other encroachment pressures are increasingly straining our ability to maintain access to the natural infrastructure (NI) necessary to meet current and emerging mission requirements. Presently, many of our installations employ workarounds, accommodate inefficiencies, and/or incur added costs to accomplish their daily Air Force missions. Consequently, we must take an objective look at the causes of these mission impacts to determine if there are feasible solutions to prevent further degradation of (or enhance) our mission capability.

Paraphrasing from the Defense Installations Strategic Plan, we must sustain, restore and modernize our installation assets to ensure availability, when and where needed, with the relevant capabilities and capacities necessary to effectively and efficiently support the 21st century Air Force. Integral to meeting this goal, we must focus our NIM efforts to preserve operational capabilities while balancing the needs of the environment and surrounding communities. NIM establishes the construct under which we will do just that.

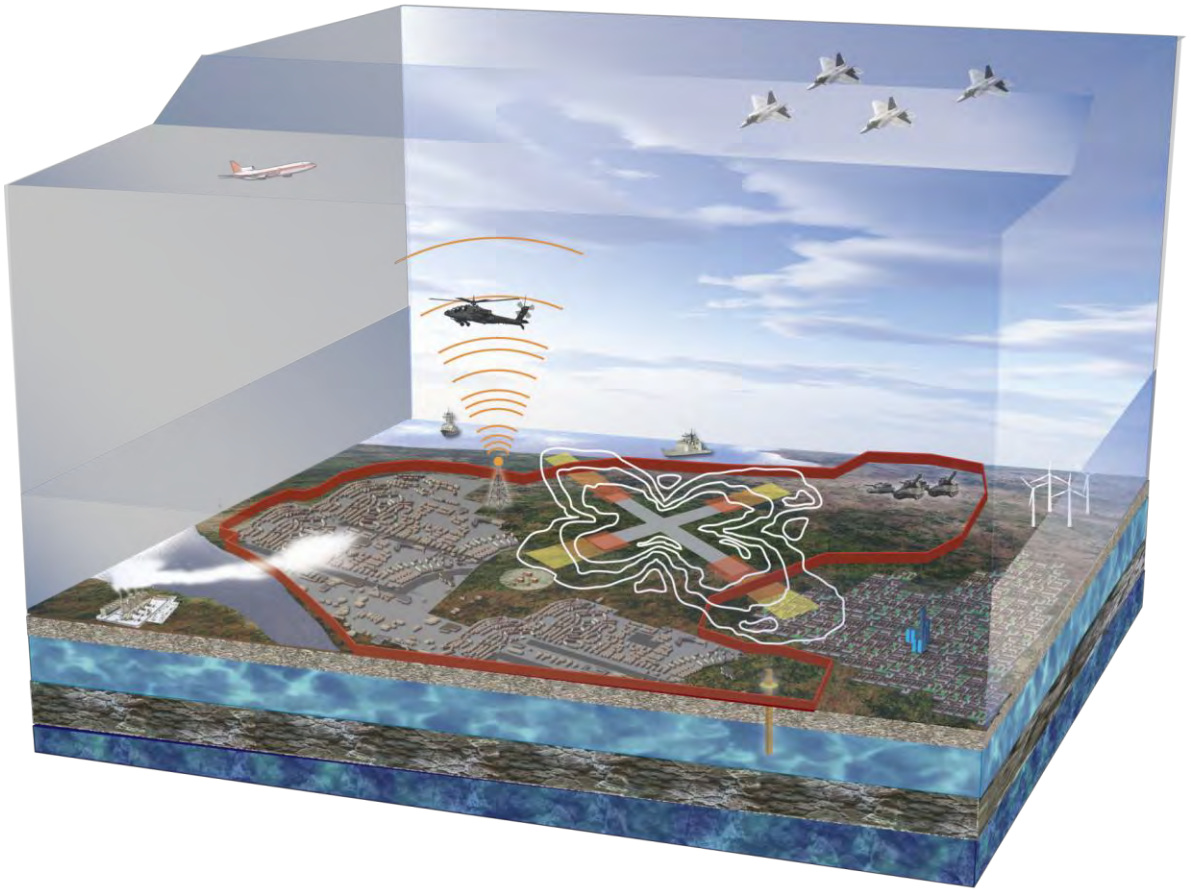
NIM institutes a holistic, asset management approach that links all organizations that control NI assets (e.g., airspace, frequency spectrum, land training areas, etc.) and focuses management actions toward one common goal…mission sustainment. It integrates associated operational and environmental information to provide decision makers with a more complete and relevant sight picture regarding current operational opportunities and deficiencies, their impacts, and how conditions are expected to change in the future. At the installation and MAJCOM levels, this process will assist in identifying and prioritizing initiatives to address mission inefficiencies and encroachment, and leverage excess capacities for mission growth. Additionally, at the Air Staff and DOD levels, when combined with similar data from other commands and Services, it will enable



UNITED STATES AIR FORCE
NATURAL INFRASTRUCTURE
ASSESSMENT GUIDE

FINAL – JANUARY 2008

AF Natural Infrastructure



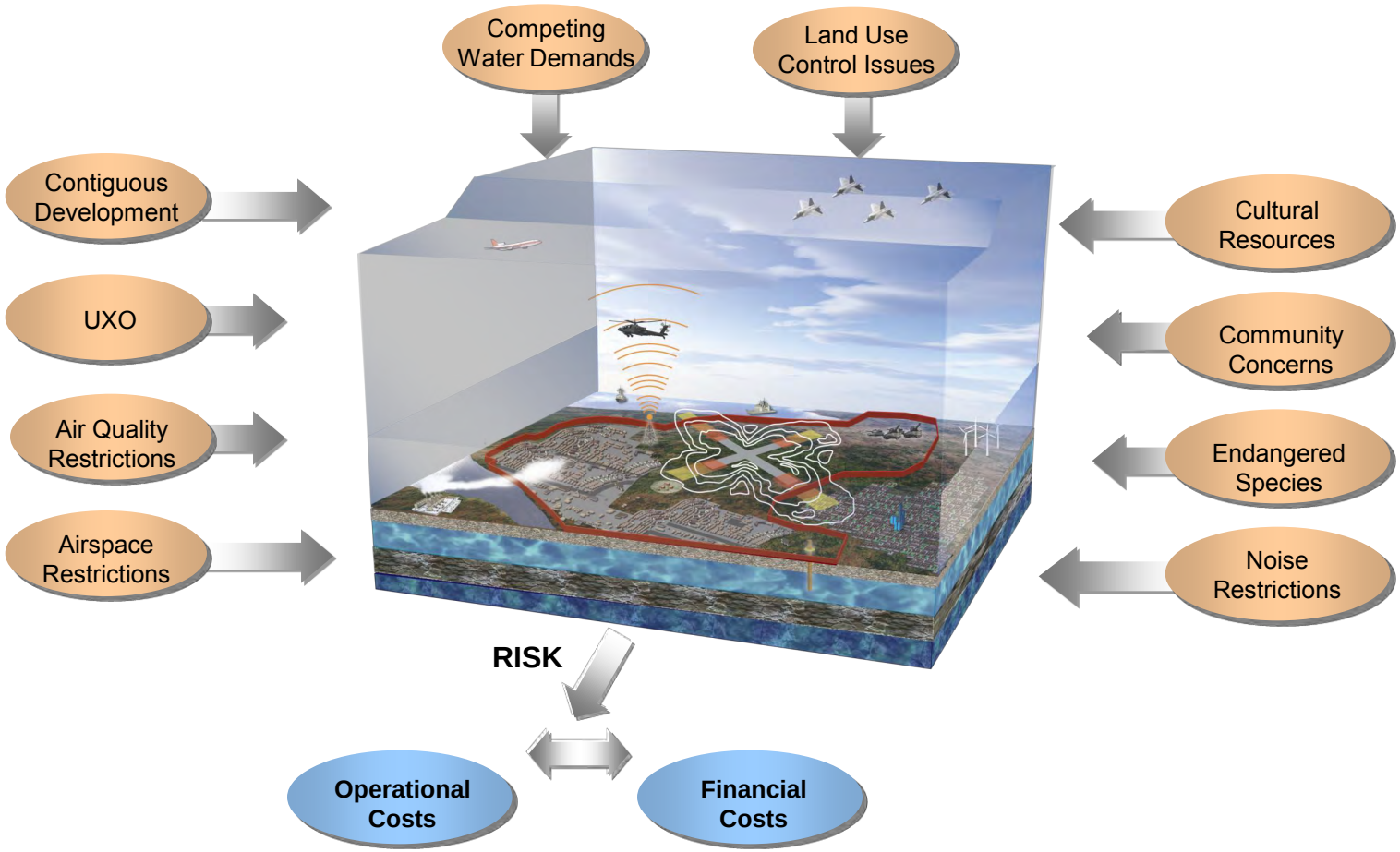
ELEMENTS OF NATURAL INFRASTRUCTURE

- Airspace
- Air Quality
- Water Supply
- Water Discharge
- Land
- Frequency Spectrum
- Energy
- Waste

"Sustain, Restore, and Modernize"

Sources of NI Encroachment

Encroachment → Degradation and/or Denial of Access to a Resource that Results from Competition (Internal or External) for that Resource



NIM Concepts

- Focus Management on Sustaining NI for the Mission and Future Generations
  - Air, Land, Water, Energy, Waste
- Manage NI as a Group of Assets
- Set Goals to Prevent Encroachment Based on Mission Requirements

NIM Benefits

- Provides Leadership Complete Picture of the Ability of the NI to Support:
  - Current Mission
  - Future Mission Changes
- Enhances Decision Making Necessary to Address Deficiencies and Opportunities for Growth
- Improves Bed-down Process
- Encroachment Trend Monitoring/Analysis
- Congressional Reporting

Natural Infrastructure Assessment

- Establish NI quantities, conditions, and capacities
- Assess the ability of NI assets to meet current mission needs
- Provide baseline knowledge for:
  - Future basing actions and NI asset requirements
  - Making decisions to better manage NI
  - Risk management actions, sustaining needed infrastructure, and *preventing encroachment*
  - Determining *availability* of key NI

Natural Infrastructure Assessment

- NIA conducted via Cross Functional Team
- Annual Update
- Living Document
- NIA Tool
- NIM Community of Practice

NIA Tool

Standardized NIA Data Collection and Analysis "tool"

- AF NIA Spreadsheet – Air & Space, Land, Water
- NIA Supplemental Spreadsheet – Waste and Energy

N-Ratings are Based on Embedded Calculations Using Entered Data

NATURAL INFRASTRUCTURE ASSESSMENT

UNITED STATES AIR FORCE

BASE INFORMATION	
Installation:	
Assessment Date:	
POC Name:	
POC Phone Number:	

AIRSPACE	AIR QUALITY	RF SPECTRUM	LAND	WATER SUPPLY-DISCHARGE

N-Ratings

N-0 – Resource is capable of fully supporting the current mission of assigned units, organizations, and tenants with no work-arounds and offers additional capacity to meet potential future mission.
N-1 – Resource is capable of supporting the current mission of assigned units, organizations, and tenants with no work-arounds.
N-2 – Resource is capable of supporting the current mission of assigned units, organizations, and tenants with minimal work-arounds.
N-3 – Resource capability presents a challenge for supporting the current mission of assigned units, organizations, and tenants due to moderate work-arounds.
N-4 – Resource capability presents significant challenges for supporting the current mission of assigned units, organizations, and tenants due to significant work-arounds.

Airspace

Airspace Measures

- Airfield Accessible Volume
  - Measures volume and restrictions wit the TCA (Class D)
- Military Airspace Accessible Volume
  - Measures volume and restrictions with SUA
    - MOA's, Warning Areas, Restricted Areas
- Distance
  - Measures the distance traveled to training areas

Land

Military Land –Test and Training Areas (TTA)

- TTA Mission Req. – Area
- TTA Mission Req. – Time
- Time Access Denied to TTA

Non-Military Land – Data Collection

- QD Arcs, Weapon Danger Zones, Firing Safety Zones
- AICUZ

Non-Military Land

- Data collection for QD Arcs, Weapon Danger Zones, and Firing Safety Fans
  - Determine if any acreage extends off base
  - Controlling mechanisms implemented by the community
    - Easements, zoning, etc.
- AICUZ
  - Acreage zone incompatible
  - Controlling mechanisms implemented by community

Water

Water Supply

- Water Supply Source (Avg/Peak)
  - Compares water supply with average and peak water demand including fire demand
- Water Distribution System (Avg/Peak)
  - Compares the capacity of the water distribution system with average and peak water demand including fire demand
- Water Supply Quality
  - Determine if primary and secondary drinking water standards are met

Water

Water Discharge

- Storm Water Discharge Capacity (Avg/Peak)
- Storm Water Discharge Quality
- Storm Water Receiving Body Quality (current/future)
- Wastewater Discharge Capacity (Avg/Peak)
- Wastewater Discharge Quality
- Wastewater Receiving Body Quality

Waste Measures

On-Site Solid Waste Capacity

- Calculates the number of years remaining for disposal in an existing on-site landfill

Off-Site Solid Waste Availability

- Assesses the out-year availability to receive solid waste off-site within the region

Hazardous Waste Disposal Cost

- Compares the cost per ton of hazardous waste to the avg cost per ton for disposal

Diversion Rate

- Measures the success of the installation in achieving its annual diversion rate goal

U.S. AIR FORCE

Energy Measures

Fuel Throughput

- Ability of fuel systems to deliver the required gallons per day to meet mission needs

Fuel Storage

- Evaluates the volume of fuel storage available to meet the throughput demand for 7 days

System Capacity vs. Average Usage

- Evaluates capacity of energy supply system to meet average demand

Energy Measures Cont'd

System Capacity vs. Peak Usage

- Compares energy supply against demand in most constrained month

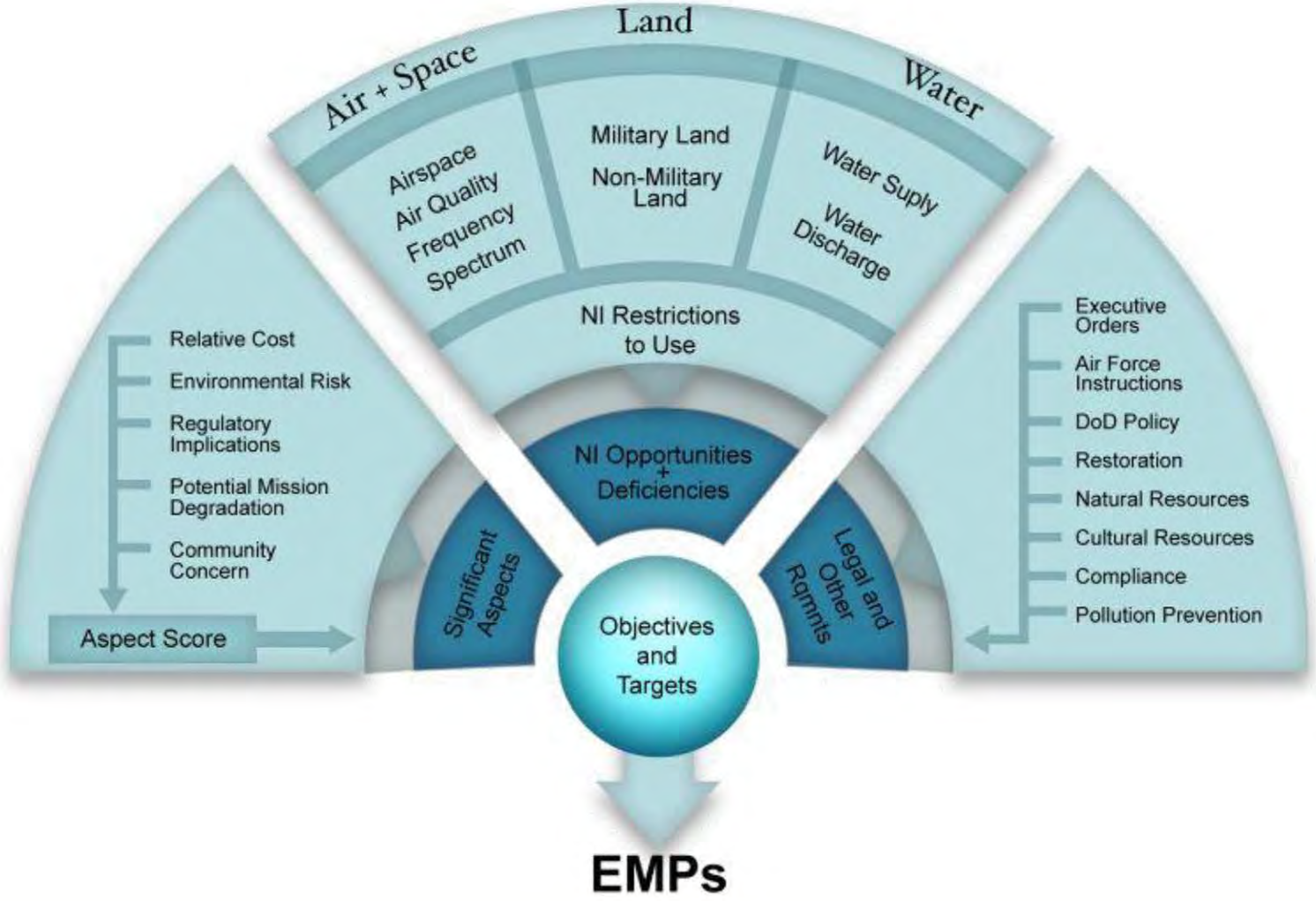
Days Restricted

- Quantifies the number of days restrictions of the energy supply

Blackouts/Brownouts

- Captures the number blackout/brownout occurrences per year

NIM/EMS/AM Integration



NIM/EMS/AM Integration

NIA results used to set objectives and targets in EMS

EXAMPLES:

- Objective: Reduce energy consumption
- Target: Reduce energy consumption by 3% by 2011
  - NIA energy measure to track electrical supply

- Objective: Reduce water consumption
- Target: Reduce water consumption by 5% by 2010
  - NIA water supply measure to track water usage

NIM/EMS/AM Integration

Draft NI Asset Management Plan (AMP)

- Preservation of airspace
- Acquisition of additional land that is required to meet the identified future requirements of the base
- Management of:
  - Encroachment and natural infrastructure impacts
  - Natural water resources (other than those related to the water supply and wastewater activities)
  - Threatened and endangered flora
  - Restoration (natural resource damage, erosion management, etc)

Sustainability

Executive Order13423

- Use NIM to Measure Environmental Goals

Blueprint for Sustainability

- Energy Efficiency
- Recycling
- Pollution Reduction
- Reduce Water Consumption
- Reduce Hazardous Waste
- Implement an EMS

Questions?